

# Chapter 6 - Maintenance and Troubleshooting

This chapter covers normal maintenance, troubleshooting and factory service for the Printer and Sonoclot Analyzer. After reviewing the following information, if you are still experiencing problems call the Sienco Service Department at 800/432-1624 or 303/420-1148.

## Printer Maintenance

### **Loading Thermal Paper**

To re-load Printer paper, carefully follow these instructions. Using your thumb, pull paper holder cover towards the back of the Printer and lift cover upwards. Cut the beginning of the paper in an inverted “V” and set the roll on the cover so that the start of the roll feeds from the bottom. Push the paper into the inlet until you can see top of the paper from the paper cutter. With the printer OFF LINE, press the feed switch until the paper catches on the roller and starts feeding. Advance the paper; close the cover; and tear-off the “V”.

### **Printer Troubleshooting**

The following is a list of areas to check if you have any problems with your Sienco Sonoclot Analyzer or Printer. If after checking these procedures you are still experiencing problems, call the Sienco Service Department at 800/432-1624 or 303/420-1148.

#### **Printer fails to print**

Check to ensure that the cables are securely connected and Printer is plugged in, ON and ON-LINE. The Printer should begin printing when the START switch is lowered. To run a Printer self test, turn off the Printer. Next, while pressing down on the paper feed switch, turn the Printer ON and release paper feed switch. The self test will generate fonts in condensed, ordinary and double-width printer mode.

#### **Printer appears to print but nothing appears on the paper**

If the paper roll has been installed upside down, characters will not appear. Follow the instructions above to re-load the thermal paper.

#### **Printer occasionally prints garbage characters**

This may happen if the buffer for print characters fills and characters are lost. Reset Printer by turning it off and then back on.

#### **Printer OFF-LINE lamp is flashing**

This indicates the Printer paper has run out. Instructions on how to re-load paper are found at the top of this page.

### **Printer ON-LINE and OFF-LINE lamps are on**

Turn off power switch and remove any objects that may be preventing the head from returning to the home position. If the room temperature is extremely cold, this will also cause these lights to flash, since the Printer must be in a location where the temperature is between 0 °C to 40 °C. Turn ON the power switch.

### **Printing is very light or very dark**

A low grade of thermal paper will make a difference in the quality of the output. Printer paper may be purchased from Sienco, P/N 800-0518. We recommend it be stored in a cool, dark place.

### **Printer stops printing before an analysis is complete**

The Sonoclot Analyzer is factory set to stop printing after a Signature has been running for 60 minutes. If you would like to change this time, see Chapter 5 Changing the Auto Stop Time for this option.

### **Printer scale changes in the middle of a Signature**

If the scale knob is set to either AUTO 100 or AUTO 120, the scale will change if the Clot Signal exceeds the maximum scale value. This will also occur if the scale knob is manually turned while a Signature is printing.

## **Sonoclot Analyzer Maintenance and Service**

### **Precautions to Improve Analyzer Reliability**

The reliability of the Sonoclot Analyzer depends heavily on proper technique. Carefully observe or apply the following precautions.

- 1: Always insert the probe by pressing the probe straight over the probe mount hub. **Avoid moving the probe mount hub sideways. This is the single most important point in Sonoclot reliability!**
- 2: Always remove the cap from the test cuvette prior to placing the cuvette into the cuvette holder. If the cap is not removed, the electromechanical transducer can be damaged when the head is lowered - crushing the probe into the cuvette cap.
- 3: Always remove the probe by pulling the probe straight away from the probe mount hub. **Avoid moving the probe mount hub sideways.**

### **Cleaning**

Cleaning should be performed after use to reduce any bio-hazard risk. The instrument may be sprayed or wiped with a disinfectant approved by your institution. **Keep the head closed when spraying any cleaner to avoid contaminating the transducer inside the head.** Always lightly spray or wipe the instrument to avoid excess wetting. Use a wipe to clean around the cuvette holder or inside the head. Only clean the probe mount hub (located near the transducer) if it is absolutely necessary. The transducer attached to the probe mount hub is easily damaged by any debris or liquid.

**Do not use isopropyl alcohol or other solvents on the front panel of the Analyzer or LCD cover.**

## Calibration

The Sonoclot Analyzers in clinical use in the United States require factory calibration and can not be calibrated by the user. Running the reference viscosity quality control will verify if the Sonoclot Analyzer is operating within calibration standards. If your analyzer requires calibration, contact Sienco, Inc. or your distributor.

## Troubleshooting

### Reference viscosity quality control value changed significantly

The reference viscosity quality control procedure outlined in Chapter 4 should yield consistent results over time (variation of  $\pm 2$  Clot Signal units). Technique is very important when performing the QC test. Refer to the Operational Precautions and Limitations for running the QC in Chapter 4 for detailed suggestions.

### Probe will not center in cuvette:

Return the instrument to Sienco, Inc. for re-alignment and re-calibration.

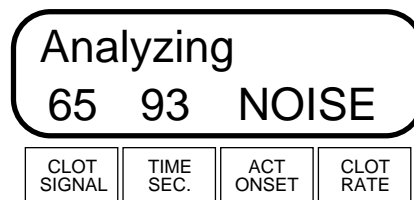
### Signature goes off Clot Signal Scale:

The Clot Signal value will go off scale under two scenarios:

- The selected Clot Signal Scale is set too low. Refer to Chapter 5 - Changing the Clot Signal Scale for guidelines in selecting an appropriate Clot Signal Scale for your applications.
- The electromechanical oscillator is not oscillating properly. This can happen during extended test runs. See the example Clot Sample Forming Crust in Chapter 3 for guidelines to identify and correct this problem.

## Sonoclot Analyzer Warning and Error Messages

The Sonoclot Analyzer will occasionally display messages that may not be familiar. Below are some examples of these messages and procedures to follow, if necessary.



**NOISE** indicates that the Clot Signal is being disturbed by either mechanical noise, such as bumping the instrument, or by interference between the probe and the cuvette. Check to ensure that the tubular probe is snug against the probe mount hub and the cuvette is in contact with the bottom of the cuvette holder. This message should disappear within a few seconds.

Ready  
ERROR ###

CLOT SIGNAL	TIME SEC.	ACT ONSET	CLOT RATE
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**ERROR** indicates that the self test routines in the Sonoclot Analyzer software have detected a problem, which will be printed on the Printer. The message normally will disappear after several seconds, but if it does not, make a note of the error number and call Sienco's Service Department.

Ready  
Check Printer!!!

CLOT SIGNAL	TIME SEC.	ACT ONSET	CLOT RATE
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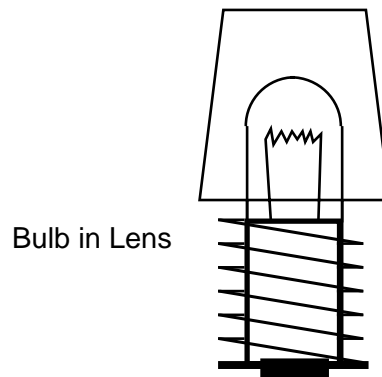
**CHECK PRINTER** indicates that the Sonoclot Analyzer detects a problem with the Printer: either it is not turned ON or it is not properly connected. The Printer should be ON and ON-LINE (indicated by the green light on the Printer) and the Printer cables securely fastened. If this condition is detected while running a sample, the Sonoclot Analyzer will beep to warn to check the Printer.

If you have any questions in regards to a display message, call Sienco's Service Department at 800/432-1624 or 303/420-1148.

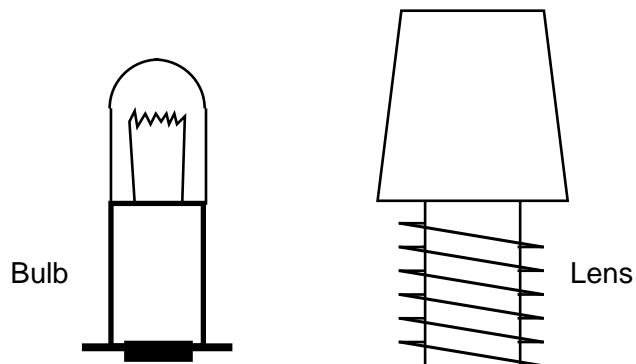
## Changing the Lamp Bulb (P/N 290-0010)

Please follow these instructions to replace the light bulb on the Sonoclot Analyzer.

- 1: Clean and decontaminate the Sonoclot Analyzer with a disinfectant to reduce any biohazard.
- 2: Remove the burned out bulb by first unscrewing the white lamp bulb lens. The lamp bulb lens contains the lamp bulb. This assembly looks like this:



- 3: To remove the lamp bulb (P/N 290-0010) from the lens, first partially separate the lamp bulb from the lens while trying not to damage the threads on the lens. Then use a needle nose pliers to grasp the bulb and pull it out of the lens.



- 4: Press a new lamp bulb into the lens and screw the lens into the Sonoclot Analyzer with your hand. Do not over tighten.

## Factory Service or Repair

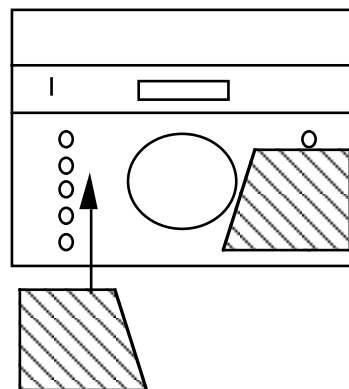
If your Sonoclot Analyzer needs service or you have any questions regarding repairs, call 800/432-1624 or 303/420-1148. In the instance you need to send your Sonoclot Analyzer to Sienco for repairs, we will be happy to supply you with a loaner instrument in the interim.

Sienco requires all returned instrument be thoroughly cleaned and decontaminated per the guidelines followed by your institution. **Please see the Appendix for a copy of the Sonoclot Analyzer Decontamination Form.**

If your Sonoclot Analyzer is no longer under warranty or if you do not have a Service Contract, you may call for a repair estimation before any work is done. When sending the Sonoclot Analyzer in for repairs, include a brief description of the problem along with a contact name and phone number. We will accept a purchase order to cover all repair costs. If you should send your instrument in for repairs and later decide not to have the work done, you will be expected to pay a minimum service charge for unit checkout.

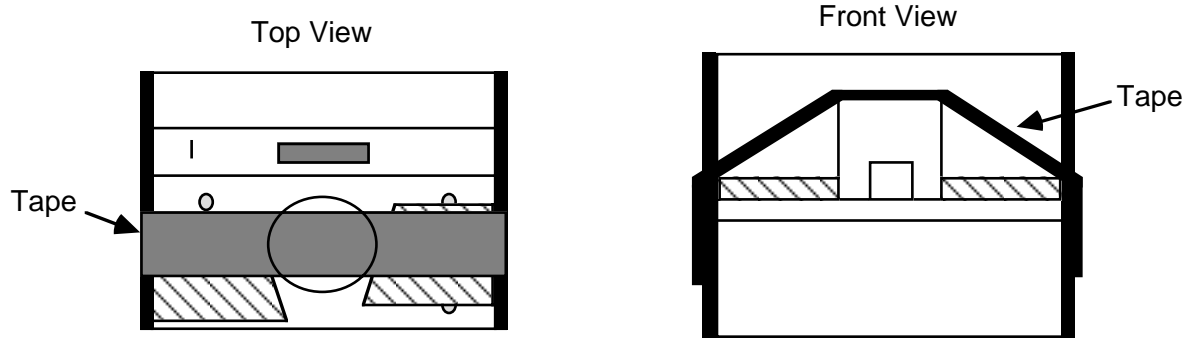
The Sonoclot Analyzer should be shipped in the original packing materials, if possible. If not, please use the box and materials your loaner will arrive in. Decontamination and shipping instructions will be included with the loaner unit, or you may call Sienco. If the instrument is damaged in transit due to poor packaging, Sienco will charge you for repairs.

To prepare instrument for shipping, remove any cuvettes, probes or other supplies from the warming holes, cuvette holder and probe mount hub. With the head closed, starting from the front of the instrument gently slide the wood blocks (provided with the instrument) to the back of the instrument between the head and the case side.



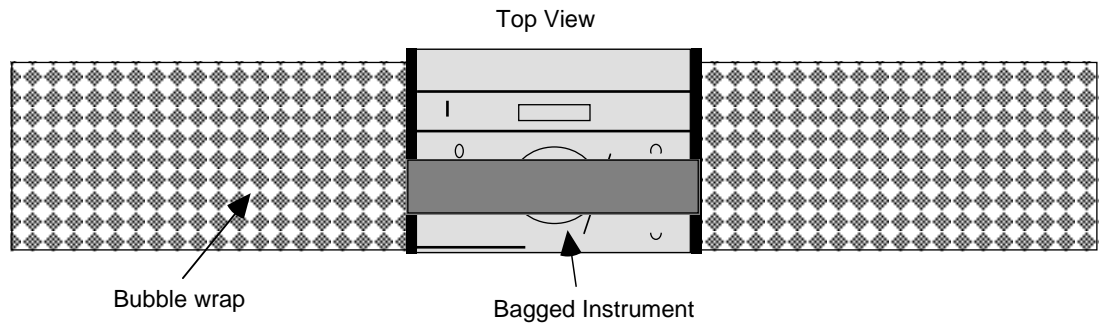
Top view

Place a large piece of shipping tape from one side across the head and down to the other side as shown below to prevent the head from moving during shipping.



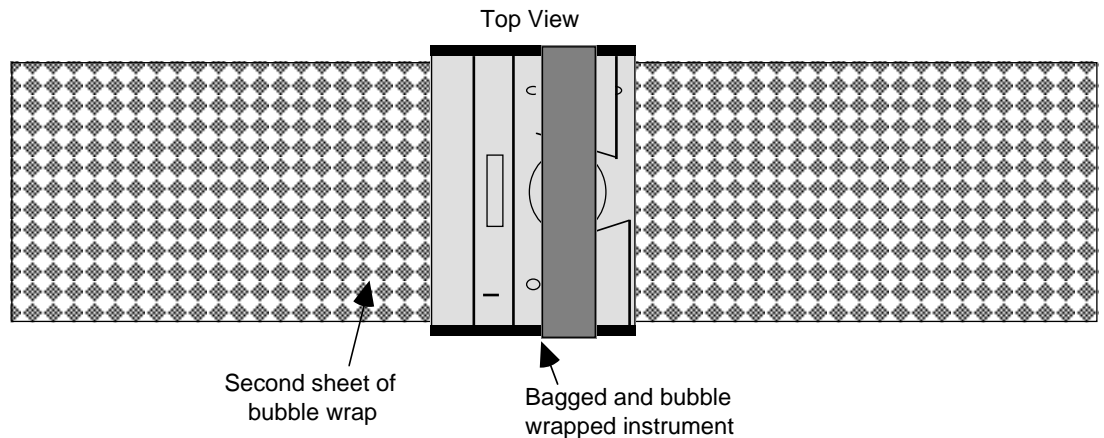
Place the instrument (without power cord) in a large, clean plastic bag and secure with a rubber band.

Lay one piece of large bubble wrap, bubble side up, on a table and set the instrument on the center of it as shown below.



Wrap bubble wrap around the instrument and secure with a large rubber band or piece of tape.

Lay another piece of large bubble wrap, bubble side up, on a table and set the instrument on the center facing the opposite way as shown below.



Wrap the second sheet of bubble wrap around the instrument and secure with a large rubber band or piece of tape.

Place the wrapped instrument along with the completed decontamination form into the shipping carton and seal. Ship the package to the following address:

Sienco, Inc.  
Service Department  
11485-A W. 48<sup>th</sup> Ave.  
Wheat Ridge, CO 80033